jarmill.github.io   miller.jare@northeastern.edu

Publications by Jared Miller

I. Journal Papers (published)

1) J. Miller, Y. Zheng, M. Sznaier, and A. Papachristodoulou, "Decomposed structured subsets for semidefinite and sum-of-squares optimization," *Automatica*, vol. 137, pp. 110–125, 2022

2) J. Miller, D. Henrion, and M. Sznaier, "Peak Estimation Recovery and Safety Analysis," *IEEE Control Systems Letters*, vol. 5, no. 6, pp. 1982–1987, 2021

3) J. Miller, M. A. Al-Radhawi, and E. D. Sontag, "Mediating Ribosomal Competition by Splitting Pools," *IEEE Control Systems Letters*, vol. 5, no. 5, pp. 1555–1560, 2021

II. Journal Papers (conditionally accepted)

1) J. Miller and M. Sznaier, "Bounding the Distance to Unsafe Sets with Convex Optimization," 2021. arXiv: 2110.14047 (IEEE Transactions on Automatic Control)

III. Journal Papers (submitted)

1) J. Miller and M. Sznaier, "Data-Driven Gain Scheduling Control of Linear Parameter-Varying Systems using Quadratic Matrix Inequalities," 2022. arXiv: 2209.06251

IV. Conference Proceedings (published)

1) J. Miller and M. Sznaier, "Facial Input Decompositions for Robust Peak Estimation under Polyhedral Uncertainty," *IFAC-PapersOnLine*, vol. 55, no. 25, pp. 55–60, 2022. 10th IFAC Symposium on Robust Control Design ROCOND 2022

2) J. Miller, D. Henrion, M. Sznaier, and M. Korda, "Peak Estimation for Uncertain and Switched Systems," in *2021 60th IEEE Conference on Decision and Control (CDC)*, pp. 3222–3228, 2021

3) J. Miller, R. Singh, and M. Sznaier, "MIMO System Identification by Randomized Active-Set Methods," in *2020 59th IEEE Conference on Decision and Control (CDC)*, pp. 2246–2251, 2020

4) J. Miller, Y. Zheng, M. Sznaier, and A. Papachristodoulou, "Decomposed Structured Subsets for Semidefinite Optimization," in *2020 21st IFAC World Congress*, 2020

5) C. Wu, J. Miller, Y. Chang, M. Sznaier, and J. Dy, "Solving Interpretable Kernel Dimensionality Reduction," in *Advances in Neural Information Processing Systems* (H. Wallach, H. Larochelle, A. Beygelzimer, F. d'Alché-Buc, E. Fox, and R. Garnett, eds.), vol. 32, pp. 7915–7925, Curran Associates, Inc., 2019

6) J. Miller, Y. Zheng, B. Roig-Solvas, M. Sznaier, and A. Papachristodoulou, "Chordal Decomposition in Rank Minimized Semidefinite Programs with Applications to Subspace Clustering," in *2019 IEEE 58th Conference on Decision and Control (CDC)*, pp. 4916–4921, 2019

7) J. Miller and B. Shafai, "A Model of Heave Dynamics for Bagged Air Cushioned Vehicles," in *2019 IEEE Conference on Control Technology and Applications (CCTA)*, pp. 976–981, 2019

8) B. Taskazan, J. Miller, U. Inyang-Udoh, O. Camps, and M. Sznaier, "Domain Adaptation Based Fault Detection in Label Imbalanced Cyberphysical Systems," in *2019 IEEE Conference on Control Technology and Applications (CCTA)*, pp. 142–147, 2019

V. Conference Proceedings (accepted but not yet published)

1) J. Miller, T. Dai, and M. Sznaier, "Data-Driven Superstabilizing Control of Error-in-Variables Discrete-Time Linear Systems," 2022 (CDC 2022)

2) J. Miller and M. Sznaier, "Bounding the Distance of Closest Approach to Unsafe Sets with Occupation Measures," in *2022 61st IEEE Conference on Decision and Control (CDC)*, 2022 (CDC 2022)

3) F. Bečanović, J. Miller, V. Bonnet, K. Jovanović, and S. Mohammed, "Assessing the Quality of a Set of Basis Functions for Inverse Optimal Control via Projection onto Global Minimizers," 2022 (CDC 2022)

VI. Conference Proceedings (submitted)

1) J. Miller and M. Sznaier, "Data-Driven Gain Scheduling Control of Linear Parameter-Varying Systems using Quadratic Matrix Inequalities," 2022. arXiv: 2209.06251

2) J. Miller, T. Dai, and M. Sznaier, "Superstabilizing Control of Discrete-Time ARX Models under Error in Variables," 2022. arXiv: 2210.14893

3) A. Epstein, N. Magre, and J. Miller, "Time-Frequency Regularized Overlapping Group Shrinkage," 2022

VII. Preprints

1) J. Miller, T. Dai, and M. Sznaier, "Data-driven stabilizing and robust control of discrete-time linear systems with error in variables," 2022. arxiv: 2210.13430

2) J. Miller and M. Sznaier, "Facial input decompositions for robust peak and reachable set estimation under polyhedral uncertainty," 2021. arXiv: 2112.14838

VIII. Seminars

3) Bounding the Distance to Unsafe Sets with Convex Optimization, DCSD Rising Stars, 2nd Modeling, Estimation and Control Conference, Jersey City, October 2-5 2022.

4) Tutorials about Convexity, Interior Point Methods, Frank-Wolfe algorithms (with applications to system identification), and Polynomial Optimization, June 27, 2022, From Data to Control, Israeli Association of Automatic Control (with M. Sznaier).

5) "Bounding distances to unsafe sets", June 16, 2022, IfA Coffee Talks, ETH Zurich.

6) "Bounding distances to unsafe sets", June 14, 2022, LA3 Meeting, EPFL Lausanne.

7) "Bounding distances to unsafe sets", June 3, 2022, Journées SMAI MODE, University of Limoges (XLIM).

8) Tutorials about Interior Point Methods, Polynomial Optimization, Frank-Wolfe algorithms and variations, and SDP approximations, May 16-20, Sparsity and Big Data in Control, Systems Identification, and Machine Learning, European Embedded Control Institute.

9) "Bounding distances to unsafe sets", April 14, 2022, Conic Linear Optimization for Computer-Assisted Proofs, Mathematisches Forschungsinstitut Oberwolfach (MFO).

10) "Bounding distances to unsafe sets", June 28, 2021, Brainstorming days on measure and polynomial optimization (BrainPOP), LAAS-CNRS.

11) "Data-Driven Peak and Reachability Set Estimation", May 25, 2021, MS112 Methods of Learning Dynamical Systems for Control, SIAM Conference on Dynamical Systems.

12) "Analysis and Control of Time-Delay Systems with Occupation Measures", May 3, 2021, BrainPOP, LAAS-CNRS. Work not yet published, in preparation.
13) "Exploiting Structure in Rank-Constrained and Approximated Semidefinite Programs", December 19, 2019, TISEM Operations Research Seminar, Tilburg University.

f) Poster Sessions

14) "Safety Analysis using Distance Estimation and Measures." August 24, 2022. CLEVR-AI MURI Yearly Review Meeting, Northeastern University.
15) "Exploiting SDP Structure Yields Tighter Approximations." April 9, 2020. RISE, Northeastern University (remote).
16) "Exploiting SDP Structure Yields Tighter Approximations." February 24, 2020. IPAM Control, Learning and Optimization workshop, University of California, Los Angeles.
17) "Chordal Decompositions in Rank Minimized SDPs." May 30-31, 2019. Learning for Decision and Control (L4DC), Massachussets Institute of Technology.
18) "Chordal Decompositions in Rank Minimized SDPs." May 10, 2019. New England Machine Learning Day, Northeastern University.
19) "Scattered data interpolation through B-spline wavelets and the Elastic Net." April 14, 2017. RISE, Northeastern University.
20) "A parallelized Python-based Multi-Point Thomson Scattering analysis in NSTX-U." October 29, 2014. 56th Annual APS Plasma Physics Conference, New Orleans.